Evaluation of mattresss replacements for routines use in a large general hospital

EVALUATION OF MATTRESS REPLACEMENTS FOR ROUTINE USE IN A LARGE GENERAL HOSPITAL

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Aim. Pressure sores arise from the combined effects of pressure, friction and shear[1]. Whilst their aetiology is complex and remains uncertain, constriction of small blood vessels at or near the surface contribute to tissue injury and necrosis. Commonly, pressure-redistributing mattresses are used to prevent initial development and the deterioration of sores[2]. We required data to inform the decision as to which mattress to adopt

Method. Altnagelvin hospital was scheduled for mattress replacement in 1998 and this led to 12 foam mattresses being subjected to testing for 48 hours using an indentor loaded with 30kg[3]. Interface pressures were recorded before and after 24 hours loading.

Results. Peak readings were taken to indicate level of pressure sore care and used in a process of exclusion of poor performance. The best three mattresses were included in a lifetime costing study using manufacturers' guarantee period to indicate mattress life.

Conclusion. Quantitative bioengineering analysis of mattress pressure relieving properties is useful prior to purchase. On the basis of these findings, 500 type 12 mattresses have been purchased, the "Pentaflex"™ from Huntleigh Healthcare Ltd., Luton, England, UK.

Table. Peak pressures (arbitrary units) on loaded mattresses, in order of peak pressure-at-onset (three best cases)

Type	onset	Relief	Cost	life	price/ yr.
6	106	99	145	2.5	58
12	109	102	144	4	36
7	131	116	135	1.5	90

1. Jay, E. How different constant low pressure support surfaces address pressure and shear forces. Journal of Tissue Viability 5: 4, 118-122.
2. Dealey, C. Mattresses and beds. Journal of Wound Care 4: 9, 409-412.
3. Medical Devices Directorate, Department of Health, London. Evaluation 1993; PS1: 1-24.